

REMARKS

Claims 1 and 3-27 are pending in this application. By this Amendment, claims 1, 3, 11, 13, 20 and 23 are amended for clarity.

Entry of this Amendment is proper under 37 C.F.R. §1.116 because the amendments: a) place the application in condition for allowance for the reasons set forth below; b) do not raise any new reasons that require further search and/or consideration; and/or c) place the application in better form for an appeal, should an appeal be necessary. More particularly, the above amendments are merely for clarity. For example, independent claim 1 is amended to recite transmitting the downlink data through the each physical channel having a different transmission starting point from the base station. The amended features have been previously recited in the claims (including the preamble and body of the claims) and therefore no further search and/or consideration is necessary by the Examiner. Entry is proper under 37 C.F.R. §1.116.

The Office Action rejects claims 1, 3, 4, 10-15 and 19-25 under 35 U.S.C. §103(a) over U.S. Patent 6,542,484 to Ovesjo et al. (hereafter Ovesjo) in view of U.S. Patent 6,519,237 to McDonough et al. (hereinafter McDonough) and U.S. Patent 6,044,074 to Zehavi et al. (hereafter Zehavi). The Office Action also rejects claims 5, 6, 16 and 26 under 35 U.S.C. §103(a) over Ovesjo, McDonough, Zehavi and further in view of U.S. Patent 5,509,035 to Teidemann, Jr. et al. (hereafter Teidemann). The Office Action also rejects claims 7-9, 17, 18 and 27 under 35 U.S.C. §103(a) over Ovesjo, McDonough, Zehavi and further in view of U.S. Patent 6,061,338 to O. The rejections are respectfully traversed.

Applicant expressly maintains all of the arguments set forth in the May 17 Amendment. The Office Action (on pages 2 and 3) addresses several of the arguments previously made by applicant. In particular, the Office Action asserts that Ovesjo discloses using different non-orthogonal scrambling codes for downlink communications from a base station to a mobile station in different sectors of a cell. The Office Action agrees Ovesjo does not disclose different starting points for scrambling codes of non-orthogonal physical channels. The Office Action then relies on a combination of McDonough and Zehavi as teaching phase shifting of PN scrambling codes. The Office Action then states (on page 3, lines 2-4) that it would be obvious to combine this phase-shift PN scrambling code with Ovesjo so that a mobile station would know in which sector it was communicating, thus reducing interference among sectors.

However, as set forth below, this alleged combination still does not teach or suggest all the features recited in independent claim 1. Additionally, the Office Action clearly relies on impermissible hindsight and has “picked and chosen” various features from the applied references without any clear basis, in order to allegedly find the features of the claims. Even if combined as suggested in the Office Action, the combination still does not teach or suggest the features recited in independent claim 1. Thus, the Office Action fails to make a *prima facie* case of obviousness as will be further described below.

Independent claim 1 recites determining a non-orthogonality among each downlink physical channel and differently deciding each transmission starting point of the each physical channel from the base station, if the non-orthogonality is determined to exist among the physical channels. Independent claim 1 further recites transmitting the downlink data through the each

physical channel having a different transmission starting point from the base station. For example, embodiments of the present invention relate to determining whether a non-orthogonality or orthogonality exists and if a non-orthogonality exists then differently deciding transmitting starting points from a base station.

McDonough relates to a searcher “in a receiver”. That is, the searcher may output values of energy level of “received signals” for searching a path of the signals in a modem of the receiver. The searcher may search a main path and report it. In searching the main path, the first received signals may have a low energy level so the searcher may accumulate N pilot symbols through a slot. In this method, the PN sequence is generally used. By reason of PN sequence maintaining orthogonality in spite of shifting, if synchronism is acquired, the searcher can make a distinction between signals from a plurality of base stations.

The shifting of a PN sequence “in a receiver” (as in McDonough) does not relate to the specifically claimed features. That is, independent claim 1 recites differently deciding each transmission starting point of the each physical channel from the base station and transmitting the downlink data through the each physical channel having a different transmitting point from the base station. Independent claim 1 further relates to “if the non-orthogonality is determined to exist among the physical channels.” The “shifting of a PN sequence” as in McDonough is not varying a starting point of scrambled signal or the claimed different transmission starting point. These differences are clear to one skilled in communication. Even further, Ovesjo discloses allocating code set spatially, in detail, according to angular region, to avoid interference. Ovesjo’s method for “allocation code set” differs from the features of the present application.

For at least these reasons, Ovesjo and McDonough do not teach or suggest all the features of independent claim 1 or the features alleged in the Office Action.

Additionally, Ovesjo may not be combined with McDonough and Zehavi as suggested in the Office Action to find differently deciding each transmission starting point if the non-orthogonality is determined to exist. Rather, McDonough (and Zehavi), at best, merely disclose that a pilot PN sequence can be phase shifted among a plurality of base stations. See McDonough's column 2, lines 20-23. Accordingly, McDonough teaches each of the base stations may phase shift a pilot PN sequence. That is, in McDonough, the shifting value is an offset from different base stations (i.e., the shifting of a PN sequence for cell searching). This does not teach or suggest differently deciding each transmission starting point from a base station. Merely because McDonough discloses that a pilot PN sequence can be phase shifted among a plurality of base stations so that the separate base stations do not all transmit the same code at the same phase shift, this does not teach or suggest the missing features of independent claim 1. Zehavi also does not teach or suggest these missing features. That is, Zehavi merely relates to a PN code as a spreading code in each step of the access probe. Therefore, Zehavi does not teach or suggest the features of independent claim 1 missing from Ovesjo and McDonough.

Furthermore, even if the combination were made, there is no suggestion in Ovesjo and McDonough and/or Zehavi that different transmission starting points are to be decided if non-orthogonality is determined to exist. Rather, merely because McDonough discloses phase shifting of pilot PNs, there is no suggestion for differently deciding transmission starting points

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if the non-orthogonality is determined to exist. McDonough merely shifts a PN sequence for cell searching but does not suggest shifting if non-orthogonality is determined to exist. The Office Action appears to suggest that one skilled in the art would make this combination to reduce interference by offsetting of transmission times. However, the motivation alleged in the Office Action of reducing interference is not taught or suggested within the applied references, nor is there any basis for this motivation provided in any cited prior art. Rather, the Office Action relies on impermissible hindsight by using applicants' own disclosure in order to show motivation to make the combination of the references. There is no suggestion in the prior art to combine the shifting of starting points of non-orthogonal channels as compared to maintain starting times of orthogonal channels as set forth in the present application. Ovesjo and McDonough do not suggest deciding transmission starting points if the non-orthogonality is determined to exist.

For at least the reasons set forth above, independent claim 1 defines patentable subject matter.

Independent claim 3 defines patentable subject matter for at least similar reasons. That is, independent claim 3 recites determining a non-orthogonality among each downlink physical channel through a same frequency bandwidth, differently deciding each transmission starting point of the each physical channel from the base station, if the non-orthogonality is determined to exist among the downlink physical channels. Independent claim 3 also recites transmitting the downlink data through the each physical channel having the differently decided transmission

starting points. For at least similar reasons as set forth above, the applied references do not teach or suggest these features of independent claim 3.

Independent claim 11 defines patentable subject matter for at least similar reasons. That is, independent claim 11 recites a first group of physical channels maintaining orthogonality due to the Walsh function using a same quasi-orthogonal function (QOF) having equivalent chip transmission starting points from a base station, while a second group of physical channels not maintaining orthogonality due to use of a different quasi-orthogonal function (QOF) have different chip transmission starting points from the base station, wherein each of the physical channels of the second group has a different starting point. The applied references do not teach or suggest these features of independent claim 11 for at least the reasons set forth below.

Independent claim 13 also defines patentable subject matter for at least similar reasons. That is, independent claim 13 recites examining whether the specific codes are orthogonal with one another, determining starting times of transmitting data on the downlink physical channels, when the specific codes of the physical channels are non-orthogonal with one another, wherein the starting time of one physical channel from the base station is different from the starting time of another physical channel from the base station, and transmitting the data on the downlink physical channels at the determined starting times. The applied references do not teach or suggest all the features. The applied references particularly do not teach or suggest that the starting time of one physical channel is different from the starting time of another physical channel.

Independent claim 20 also defines patentable subject matter for at least similar reasons.

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That is, independent claim 20 recites examining indices of the quasi-orthogonal functions for each physical channel, determining starting times of transmitting data on the downlink physical channels, when indices indicate that the quasi-orthogonal functions are non-orthogonal with one another, wherein the starting time of one physical channel from the base station is different from the starting time of another physical channel from the base station, and transmitting the data on the downlink physical channels at the determined starting times. The applied references do not teach or suggest all the features. The applied references particularly do not teach or suggest that the starting time of one physical channel is different from the starting time of another physical channel.

Independent claim 23 also defines patentable subject matter for at least similar reasons. That is, independent claim 23 recites scrambling and transmitting first data on a first physical channel from a base station by a first scrambling code, scrambling and transmitting second data on a second physical channel from the base station by a second scrambling code, and wherein a chip synchronization on the first physical channel and on the second physical channel is not made.

For at least the reasons set forth above, each of independent claims 1, 3, 11, 13, 20 and 23 define patentable subject matter. Claims 2 and 4-10 depend from claim 1, claim 12 depends from claim 11, claims 14-19 depend from claim 13, claims 21-22 depend from claim 20 and claims 24-27 depend from claim 23 and therefore define patentable subject matter at least for this reason. In addition, the dependent claims also recite features that further and independently distinguish over the applied references.

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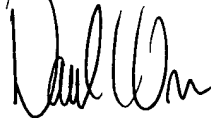
Docket No. K-0200

CONCLUSION

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Favorable consideration and prompt allowance of claims 1 and 3-27 are earnestly solicited. If the Examiner believes that any additional changes would place the application in better condition for allowance, the Examiner is invited to contact the undersigned attorney, **David C. Oren**, at the telephone number listed below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this, concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,
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